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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
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| 10/085,614      | 02/28/2002  | William R. Rehman    | 11694-04182 (98-134D) | 8104             |

27483 7590 02/13/2003

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EXAMINER

KOCH, GEORGE R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1734

DATE MAILED: 02/13/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/085,614

Applicant(s)

REHMAN ET AL

Examiner

George R. Koch III

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#6

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 33 recites the limitation "the spray nozzle" in line 1. There is insufficient antecedent basis for this limitation in the claim. This is the first reference to a spray nozzle. It is suggested that applicant amend the phrase to "a spray nozzle", and the application has been examined as if this was intended.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Lader (US 5,622,313).

As to claim 31 in general, Lader discloses an apparatus for spraying powder coating material having a powder flow path (see Figure 1, for example), wherein the powder flow path has a charging surface for triboelectrically charging powder which comes in contact with the charging surface. Lader discloses a corona treatment device, which is an electrical conductor adjacent the charging surface (see column 5, line 22 to column 7, line 25).

As to claim 32, the spray gun is capable of charging to a negative polarity. See column 5, lines 50-61, which disclose a range of positive or negative 100 KV,

As to claim 33, Lader discloses that the nozzle, represented by item 13, is made of PTFE, a negative tribocharging material.

6. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Talacko (US 4,747,546).

As to claim 31 in general, Talacko discloses an apparatus for spraying powder coating material having a powder flow path (see Figure 1-4, item 44 for example), wherein the powder flow path has a charging surface (item 44) for triboelectrically charging powder which comes in contact with the charging surface. Talacko discloses a corona treatment device, which is an electrical conductor adjacent the charging surface (Figure 4, item 101, and see column 5, line 22 to column 7, line 25).

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lader, or Talacko as applied to claim 31 above, and further in view of any of (1) (a) Handbook of Plastic Compounds, Elastomers and Resins with (b) Powder Coating : The complete finisher's handbook 1<sup>st</sup> Edition (2) Conductive Polymers and Plastics or (3) Mammino (US 5,683,844) or (4) Peck (4,090,666) and the Delrin AF fact sheet from Interstate Plastics (published in 1999) or (5) Walberg (US 3,896,994).

Lader does not disclose that any of the claimed materials can form the tribocharging surface. However, Lader does disclose that materials used as powders can be reversed to be used as charging surfaces, and vice versa (see column 1, lines 56-64).

As to the aminoplastic resin, Handbook of Plastic Compounds, Elastomers and Resins discloses that it is known to use aminoplastic resins as a coating material for automobile primer and enamel applications (for example, any of the Uformite ® entries on page 65). Automobile painting is conventionally performed by an electrostatic coating process (for example, see page 1 of Powder Coating, which discloses that electrostatic powder spray is the most common form of spraying in industrial applications). Under the reversibility principle disclosed in Lader, these aminoplastic

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resins can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an aminoplastic as the charging surface.

As to the polyamide or polyamide resin blends, Conductive Polymers and Plastics (in pages 181-187) discloses polyamide resin blends such as polyphenylene ether and polyamide as a coating material for electrostatic coating. Under the reversibility principle disclosed in Lader, these polyamide resin blends can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a polyamide resin blend as the charging surface.

As to the polyamide or fiber reinforced polyamide, Mammino discloses fiber reinforced polyamide such as fibrillated PTFE (see columns 5 through 7 and polyamide as a coating material for electrostatic coating applications. Under the reversibility principle disclosed in Lader, these fiber reinforced polyamides can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a fiber reinforced polyamides as the charging surface.

As to the polyamide or acetal polymer, Peck discloses that it is known to use delrin (an acetal polymer), nylon (a polyamide) and Teflon in the fluid flow due to their

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excellent transfer efficiencies. Further, the specifications for delrin AF (a mixture), published in 1999, disclose that delrin AF, an ac has similar dielectric properties to ordinary delrin. Ordinary delrin has a dielectric constant of 3.7 and a dielectric strength of 380 Volts/mil, and delrin AF has a dielectric constant of 3.1 and a dielectric strength of 400 Volts/mil. Since triboelectric charging effectiveness is a factor of dielectric properties, one in the art would appreciate that delrin AF is an acceptable substitute of the delrin surface cited in Peck. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an acetal polymer combined with polytetrafluoroethylene fibers such as Delrin AF as part of the charging surface in Lader since Peck discloses using delrin and delrin AF is equivalent to delrin, and such a substitution could lead to improved transfer properties.

As to another version of an acetal polymer, Walberg discloses that the internal mix cap, a part of the fluid flow, is manufactured from Celcon, cited by applicant as an acetal copolymer. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an acetal copolymer as part of the charging surface.

Furthermore, official notice is taken that is considered well known and conventional to mix the above materials to form a tribocharging surface, in order to modulate the charging of the powder.

### ***Conclusion***

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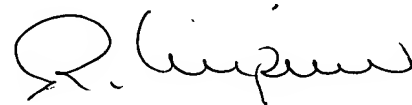
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (703) 305-3435 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



George R. Koch III  
February 3, 2003



RICHARD CRISPINO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700